



PATENT SPECIFICATION

DRAWINGS ATTACHED

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COMPLETE SPECIFICATION

Improvements in or relating to Mixing Apparatus

I, WILHELM HERMANN, a German citizen, of Frankfurter Strasse 6—14, Porz-Urbach, Germany, do hereby declare the invention, for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement:—

The invention relates to an apparatus for the preparation of mixtures having at least one ingredient in the form of a pulverised material.

According to the invention, the apparatus comprises a closed mixing tank whose top part is interposed in the air intake line of an air pump, such line having an intake nozzle for the pulverised material outside the tank, while the bottom part of the mixing tank is formed with a closable discharge aperture and has a mechanical agitator disposed in it, means being provided to prevent pulverised material being drawn into the air pump. Preferably such means comprises a filter for trapping the pulverised material disposed above the mixing tank between the latter and the air pump.

According to another feature of the invention, the mixing tank is mounted on an electronic weigher by means of which the amount of pulverised material to be supplied to the mixing tank can be controlled. Moreover, a number of pipes, as well as those forming the air intake line, extending to various supply sources of pulverised material (silos or the like) can be connected to the top part of the mixing tank, and closure members (valves or the like) for such pipes may be adapted to be controlled by means of the electronic weigher.

An embodiment of a mixing apparatus according to the invention is diagrammatically illustrated in the drawing which illustrates the simplest case—i.e., the case in which a single pulverised material is introduced into a liquid and mixed therewith.

The base of a mixing tank 1 formed as a pressure reservoir is formed with a closable discharge aperture 2. Disposed in the bottom part of the tank is a mechanical agitator 3

which can be driven, for instance via a shaft 5, by an electric motor 4 which is disposed in the tank—but in the top part thereof—and which is completely enclosed. The motor is supplied with current by means passing through the tank walls. Alternatively, the agitator motor can be outside the tank and the agitator can be driven via a shaft extending either through the tank walls or through the discharge aperture 2. Extending into the top part of the tank is a pipe 6 whose free end has a suction nozzle 7 for a pulverised material 8 disposed, for instance, in a silo (not shown). The pipe 6 constitutes a portion of the air intake line of an air pump 11. Also extending into the top part of the mixing tank is a pipe 10 forming the other portion of the air intake line, a filter 9 for trapping the pulverised material being provided to prevent the latter being drawn into the air pump 11.

To mix the pulverised material 8 with a liquid, the liquid is first introduced in the desired quantity into the bottom part of the mixing tank; this introduced liquid has the reference 12 in the drawing. The agitator 3 and the air pump 11 are then started. Via the pipe 10, filter 9, the top part of the tank 1, the pipe 6 and the nozzle 7, the air pump sucks pulverised material 8 together with air into the tank. The pulverised material drops on to the surface of the liquid 12 in the tank and is mixed with the liquid by the agitator. Any pulverised material which is entrained by the air sucked in with such material remains in the filter 9 and can be shaken down into the tank 1 after the air pump has been stopped or after the pipe 10 has been interrupted.

If the mixing tank is mounted on an electronic weigher (not shown), the same can be used to provide an exact control of the quantity of pulverised material to be introduced into the mixing tank. Once the desired quantity has been introduced, the electronic weigher automatically shuts off either the air pump 11 or the pipe 6.

- A number of pipes similar to the pipe 6 can extend into the top part of the tank 1; these extra pipes can connect the tank 1 to various silos which contain various kinds of pulverised material which it is required to mix with one another or with a liquid. Through the agency of the electronic weigher, the various pipes extending into the top of the mixing tank can be closed or opened and kept open until the particular quantity of pulverised material required has been introduced through the corresponding pipe into the tank.
- The mixing apparatus according to the invention is very simple and efficient and takes up very little space.

WHAT I CLAIM IS:—

1. Apparatus for the preparation of mixtures having at least one ingredient in the form of a pulverised material, comprising a closed mixing tank whose top part is interposed in the air intake line of an air pump, the end of the line remote from the pump having an intake nozzle for the pulverised material outside the tank, while the bottom part of the mixing tank is formed with a closable discharge aperture and has a mechanical agitator disposed in it, means being provided to prevent pulverised material from being drawn into the air pump.
2. Apparatus as claimed in Claim 1, in which said means comprises a filter for trapping the pulverised material, said filter being disposed above the mixing tank between the latter and the air pump.
3. Apparatus as claimed in Claim 1, 2 or 3, in which the mixing tank is mounted on an electronic weigher by which the amount of pulverised material to be supplied to the mixing tank can be controlled.
4. Apparatus as claimed in Claim 3 in which a number of pipes, as well as the air intake line, extending to various supply sources of pulverised material (silos or the like) are connected to the top part of the mixing tank, and closure members (valves or the like) for such pipes are adapted to be controlled by means of the electronic weigher.
5. Apparatus for the preparation of mixtures substantially as described with reference to the accompanying drawing.

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COMPLETE SPECIFICATION

1 SHEET

*This drawing is a reproduction of
the Original on a reduced scale*

